

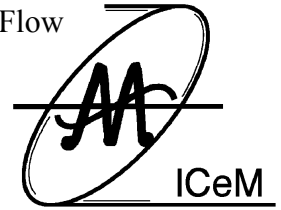


The International Information Center for Multiphase Flow

# NEWSLETTER

No. 37, March 2012

The Japanese Society for Multiphase Flow



## 7th International Symposium on Measurement Techniques for Multiphase Flow September 17-19, 2011, Tianjin, China

by Feng Dong

The 7th International Symposium on Measurement Techniques for Multiphase Flows (ISMTMF'2011) was successfully held in Tianjin, China, September 17-19, 2011. This conference was organized by Tianjin University, and co-organized by University of Shanghai for Science and Technology, Southeast University and Zhejiang University. Over 120 scholars and delegate from China, Japan, UK, Germany, France, Norway, Poland, Russia, Brazil, Israel and Singapore participated in the conference at Tianjin University. The participants discussed in depth around the conference's theme of "the research development and technique progressing of measurement techniques for multiphase flows under the condition of modern industry and current social development", and exchanged academic ideas to present new research achievements and the future direction in the measurement techniques for multiphase flows.

The International Symposium on Measurement

Techniques for Multiphase Flow was sponsored by the Chinese Society for Measurement, and co-sponsored by the Japanese Society for Multiphase Flow, the National Natural Science Foundation of China, and the Chinese Academy of Sciences. The conference aim at providing an academic exchange the stage to scholars, academics and engineers from different countries that engages in measurement techniques for multiphase flows, and promoting the development of these techniques. The first symposium was held in Nanjing, China (1995). After this launching, the symposium had been held five in Beijing, China (1998); Fukui, Japan (2001); Hangzhou, China (2004); Macau, China (2006) and Okinawa, Japan (2008). With the symposiums were held, the level of research on measurement techniques for multiphase flows has been developed and improved rapidly.

In this symposium, following five invited plenary lectures were contained in the proceedings.

### To Join ICeM:

Everybody, who is interested in Multiphase flow, is welcome to join ICeM. Please contact one of the following board members to register in ICeM member.

#### Chairperson (Editor):

Prof. Hiroshige Kikura  
Research Lab. for Nuclear Reactors  
Tokyo Institute of Technology  
Ookayama, Meguro, Tokyo 152-8550  
Tel: +81-3-5734-3058  
Fax: +81-3-5734-2959  
E-mail: kikura@nr.titech.ac.jp

#### Members:

Prof. Yoshimichi Hagiwara  
Kyoto Institute of Technology  
E-mail: yoshi@kit.ac.jp

Prof. Tomio Okawa  
Osaka University

E-mail: t-okawa@mech.eng.osaka-u.ac.jp

Prof. Shigeo Hosokawa  
Kobe University

E-mail: hosokawa@mech.kobe-u.ac.jp

Dr. Kosuke Hayashi

Kobe University

E-mail: hayashi@mech.kobe-u.ac.jp

- ◇ Prof. Koji OKAMOTO (The University of Tokyo, Japan): Multi-phase Flow Quantitative Visualization for Verification and Validation.
- ◇ Prof. Xiaoshu CAI (University of Shanghai for Science and Technology, China): Recent Progress on In-line Measurement Techniques for Particulate Two-phase Flow.
- ◇ Prof. Yong YAN (University of Kent, UK): Recent Advances in Flow Sensors and Instrumentation for Coal Fired Power Plant Optimization.
- ◇ Prof. Mao YE (Dalian Institute of Chemical Physics, Chinese Academy of Sciences): Two-Phase Flow Measurement Techniques in Industrial Solid-Gas Catalytic Processes: Current Applications and Future Perspectives.
- ◇ Prof. Ningde JIN (Tianjin University, China): Flow Pattern, Water Holdup, and Local Flow Characteristics Measurements in Horizontal Oil-Water Two-Phase Flow Pipes.
- ◇ Intelligent measurement instruments, devices and information processing;
- ◇ Process tomography and flow visualization;
- ◇ Multiphase flow models, heat & mass transfer;
- ◇ Bubbles, droplets, particle and flow patterns;
- ◇ Measurement and characteristic analysis of micro multiphase flows
- ◇ Other measurement methods of multiphase systems.

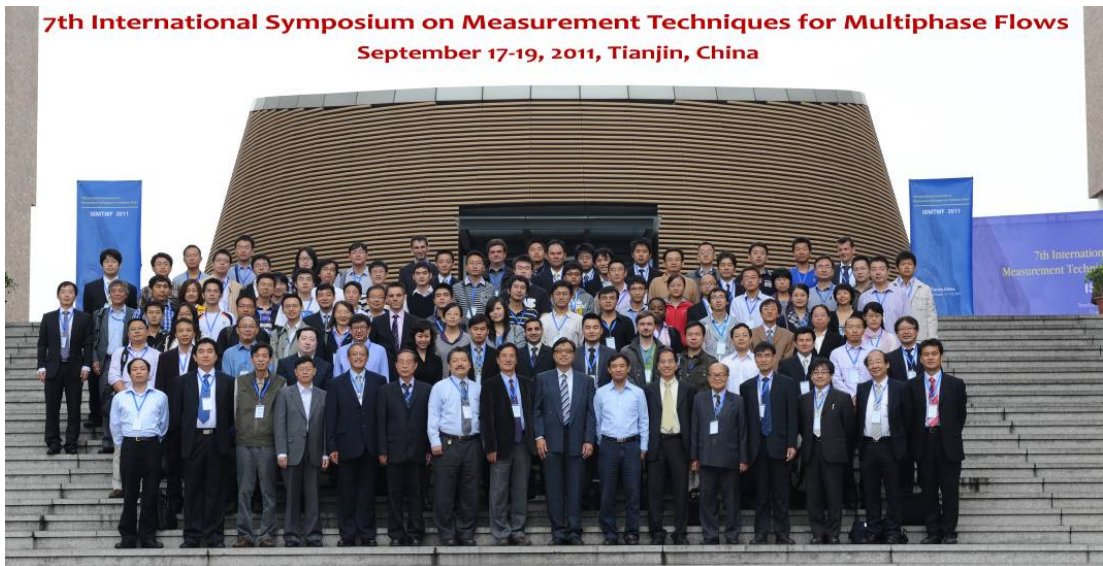
There are 90 selected papers presented in 14 sessions of the ISMTMF 2011 respectively.

The success of the conference will promote the development of measurement techniques for multiphase flows immensely. The next conference (8th International Symposium on Measurement Techniques for Multiphase Flows) will be held in Guangzhou, China, in 2013.

The major topics of the conference include:

- ◇ PIV (Particle Image Velocimetry), impedance; electromagnetic, electrostatic, optical & laser, pressure etc. new methods and techniques;

Prof. Feng Dong  
Tianjin Key Laboratory of Process Measurement and Control, Tianjin University, China  
E-mail: fdong@tju.edu.cn



**Fourteenth International Topical Meeting on Nuclear Reactor Thermal hydraulics,  
NURETH-14  
September 25-29, 2011, Toronto, Ontario, Canada**

by Jovica Riznic

The fourteenth International Topical Meeting on Nuclear reactor Thermal hydraulics (NURETH-14), with the theme "Helping the Environment with Advances in Thermal Hydraulics" was held at the Hilton Toronto Hotel in Toronto, Canada from September 25 to 29, 2011. Taking place at the same time and venue there were number of embedded progress review and topical meetings of international collaborative research projects, programmes and working groups under the umbrella of the International Atomic Energy Agency (IAEA), the Organization for Economic Cooperation and Development (OECD) and several professional associations and consortia. Among others, those include Supercritical Water Cooled Reactors, OECD Thermal hydraulics Benchmarks, Thermal hydraulics Activities in the Consortium for Advanced Simulation of LWRs (CASL), TOPFLOW-Pressurized Thermal Shock experimental program, IAEA Session on Benchmark Analyses of Sodium Natural Convection in the Upper Plenum of the Monju Reactor Vessel, OECD NEA Session on Analysis and Management of Accidents (Best-Estimate Methods and Uncertainty Evaluation-BEMUSE, CFD Studies, Severe Accidents), etc. Two professional development workshops were also held in conjunction with the NURETH-14: BEPU (Best Estimate code and Plus Uncertainty) methodology, and the Third OECD NRC Workshop on Benchmark Based on NUPEC Sub-Channel and Bundle Tests (PSBT). Combined, the NURETH-14 offered more than 100 plenary and technical sessions, panels, keynote lectures, workshops and complementary events. The meeting was organized by the Canadian Nuclear Society in cooperation with the Thermal Hydraulics Division of the American Nuclear Society, IAEA and OECD Nuclear Energy Agency (NEA).

The presentations over the four and half day conference program followed this list of technical tracks. Some of the titles actually indicate session or related event titles: Two-Phase Flow and Heat Transfer Fundamentals; Code Developments and

Applications; Severe Accidents and Fires; Advanced Code Developments; Operation and Safety of Existing Reactors; Instrumentation, Measurement Techniques and Testing; Advanced Reactors Thermal hydraulics; Waste Management Thermal hydraulics; Thermal hydraulics of Non-Electricity Generating Nuclear Equipment; Special Topics (Organized Sessions) including: Thermal hydraulics and Structural Integrity in Connection to Aging and Life Extension; -BEPU (Best Estimate code Plus Uncertainty) Method, CSAU, Statistical Methods; Study of Pressurized Thermal Shock; OECD session on Thermal hydraulic Benchmarks; OECD/NEA session on Analysis and Management of Accidents (BEMUSE, CFD Studies); IAEA session on Benchmark Analyses of Sodium Natural Convection in the Upper Plenum of the Monju Reactor Vessel; Westinghouse session on Full Spectrum LOCA – A Realistic LOCA Evaluation Model Applicable to the Full Range of Break Sizes using WCOBRA/TRAC-TF2 Code; -Development, Assessment and Applications of TRACE Mini-Symposium on Flow Induced Vibration in Nuclear Components; Mini-Symposium on Thermal hydraulics of Non-Unity Prandtl Number Flows; Mini-Symposium on Pressure Surges in Nuclear Power Plants; Thermal hydraulics Activities in the Consortium for Advanced Simulation of LWRs (CASL).

Social and networking events offered at the meeting include a welcome reception, luncheons and a banquet with entertainment provided by Dr Masanori Naitoh of the Institute of Applied Energy. Excursions for accompanying guests of meeting attendees included a city sightseeing and CN Tower tours and a visit to Niagara Falls as well. At the conference banquet, special awards were presented to the NURETH-14 Outstanding Reviewers who helped the Technical Program Committee with papers reviews. The Outstanding Reviewer Awards were presented to Dr Stephen Bajorek of US NRC, Professor Martin Rohde of the Delft University of Technology, Professor Jianqiang Shan of Xiao Jiaotong

University and Dr Slavko Vasic of the CNSC. The Most Valuable Reviewer Award went to Dr Michio Murase of the Institute of Nuclear Safety Systems.

There were 460 registrants from 32 countries attending the meeting, of which approximately 95 were students. More than 430 technical papers, out of 650 abstracts and 540 draft manuscripts were selected for presentation during the five days of conference. The conference opening included plenary lectures given by Professor Mamoru Ishii of Purdue University, the NURETH-14 Honorary Chair, and Dr Dominique Bestion of Commissariat à l'Énergie Atomique. The topical Panel sessions addressed

Lessons Learned from the Fukushima Accident, Issues and Future Directions of Thermal Hydraulic Research, and Development and Global Cooperation in Nuclear Education and Research. The proceedings of full-length papers were published on a DVD-ROM that was distributed to registrants at the meeting. Full details of the NURETH-14 conference program and the proceedings can be found at the conference website <http://nureth14.org>.

Jovica R Riznic  
Canadian Nuclear Safety Commission  
E-mail: [jovica.riznic@cnsccs.gc.ca](mailto:jovica.riznic@cnsccs.gc.ca)

### **Executive Division of The Japanese Society for Multiphase Flow (2011)**

President M. Sadatomi (Kumamoto University)

Vice Presidents H. Akimoto (JAEA)  
A. Tomiyama (Kobe University)  
Y. Koizumi (Shinshu University)

Chair of Informatics Division  
H. Kikura (Tokyo Institute of Technology)

Chair of Planning Division  
Y. Saito (Kyoto University)

Chair of International Intercourse Division  
T. Okawa (Osaka University)

Chair of General Affairs Division  
A. Kawahara (Kumamoto University)

Executive Office of JSMF:

Gakujyutu Shuppan Insatsu Co.  
2-14-9 Kasugadenaka, Konohana-ku, Osaka, 554-0022, JAPAN  
Tel : +81-6-6466-1588 Fax : +81-6-6463-2522  
E-mail : [office@jsmf.gr.jp](mailto:office@jsmf.gr.jp)  
[WWW homepage : http://www.jsmf.gr.jp/](http://www.jsmf.gr.jp/)

## Future Meetings

Following list includes Conference Name, Place, Date and Contact.

### **29th series of Short Courses on Modelling and Computation of Multiphase Flows**

Zurich, Switzerland, February 13 - 17, 2012

E-mail: [shortcourse@lke.mavt.ethz.ch](mailto:shortcourse@lke.mavt.ethz.ch)

<http://www.lke.mavt.ethz.ch/shortcourse/>

### **3rd ASME Nanoscale Heat and Mass Transfer International Conference (MNHMT2012)**

Atlanta, Georgia, March 3 - 6, 2012

Lee Hawkins

Program Manager

Knowledge & Community Sector

ASME International

Three Park Avenue, MS 23S1, New York, NY 10016

Tel/Fax: 972-414-3260, 972-414-3268

E-mail: [hawkinsl@asme.org](mailto:hawkinsl@asme.org)

<http://www.asmeconferences.org/MNHMT2012/>

### **8th KSME-JSME Thermal and Fluids Engineering Conference (TFEC8)**

Incheon, Korea, March 18 - 21, 2012

Professor Yong Tae Kang,

Secretary General

Department of Mechanical Engineering,

Kyung Hee University

E-mail: [ytkang@khu.ac.kr](mailto:ytkang@khu.ac.kr)

Tel/Fax: +82-31-201-2990/+82-31-202-3682;

Associate Professor Yutaka Tabe,

Secretary General

Graduate School of Engineering,

Hokkaido University

E-mail: [tabe@eng.hokudai.ac.jp](mailto:tabe@eng.hokudai.ac.jp)

Tel/Fax: +81-11-706-6381/+81-11-706-7889

<http://www.tfec8.org/>

### **11th World Filtration Congress (WFC11)**

Graz, Austria, April 14 - 18, 2012

Prof. Wilhelm Höflinger

Vienna University of Technology

Prof. Gerd Mausnitz,

Vienna University of Technology

E-mail: [info@wfc11.at](mailto:info@wfc11.at)

<http://www.wfc11.at>

### **11th International Hydrocolloids Conference**

Indiana, USA, May 14 - 18, 2012

Publishing Content Coordinator:

Margaret Zhao

Tel: +86-10-85208826

E-mail: [content-hydrocolloids12@elsevier.com](mailto:content-hydrocolloids12@elsevier.com)

<http://www.international-hydrocolloids-conference.com/>

### **24th Annual Conference of the Institute for Liquid Atomization and Spray Systems: North and South America (ILASS-Americas 2012)**

San Antonio, Texas, USA, May 20 - 23, 2012

Technical Program Chair:

Dr. Mario Trujillo

Department of Mechanical Engineering

Engine Research Center, University of Wisconsin

2043 Mechanical Engineering Building

1513 University Avenue 53706

Tex/Fax: 814-321-6690/608-265-2316

E-mail: [mtrujillo@wisc.edu](mailto:mtrujillo@wisc.edu)

Meeting Arrangements Coordinator and Exhibits

Chair:

Charles W. Lipp

Lake Innovation LLC, P.O. Box 3596

Lake Jackson, TX 77566

Tel: 979-266-9419

E-mail: [Charles.lipp@lakeinnovation.com](mailto:Charles.lipp@lakeinnovation.com)

<http://www.ilass.org/2012/>

### **8th ECI International Conference on Boiling and Condensation Heat Transfer**

Lausanne, Switzerland, June 3 - 7, 2012

Conference Director

Prof. John R. Thome

Laboratory of Heat and Mass Transfer (LTCM),

École Polytechnique Fédérale de Lausanne (EPFL),

CH-1015 Lausanne, Switzerland

Tel/Fax: (+41 21) 693 59 81/82/(+41 21) 693 59 60

E-mail: [john.thome@epfl.ch](mailto:john.thome@epfl.ch)

Conference Secretary

Dr. Navid Borhani

Laboratory of Heat and Mass Transfer (LTCM),

École Polytechnique Fédérale de Lausanne (EPFL),

CH-1015 Lausanne, Switzerland

Tel/Fax: (+41 21) 693 35 03/(+41 21) 693 59 60

E-mail: [navid.borhani@epfl.ch](mailto:navid.borhani@epfl.ch)

<http://boiling2012.epfl.ch/>

### **Japan-US Seminar on Two-Phase Flow Dynamics**

Tokyo, Japan, June 7 - 12, 2012

Co-organizer:

Professor Tomoji Takamasa,

Faculty of Marine Technology, Tokyo University of Marine Science and Technology,

2-1-6, Etchujima, Koto-ku, Tokyo, 135-8533, Japan

Tel/Fax: +81 (3) 5245 7406/+81 (3) 5245 7410

E-mail: [takamasa@kaiyodai.ac.jp](mailto:takamasa@kaiyodai.ac.jp)

Professor Masahiro Kawaji

Mechanical and Chemical Engineering, The City College of New York, The Energy Institute, The City

University of New York,  
Steinman Hall, Rm. 241, 140th St & Convent Ave,  
New York, NY 10031  
Tel/Fax: +1 (212) 650 8584/+1 (212) 650 8013  
E-mail: kawaji@me.cuny.cuny.edu  
<http://www2.kaiyodai.ac.jp/~takamasa/J-US2012/>

**2012 ANS Annual Meeting**

Chicago, USA, June 24 - 28, 2012  
General Chair:  
Amir Shahkarami (Senior VP, Exelon Generation)  
Program Chair:  
Ray Klann (Argonne National Laboratory)  
[http://www.new.ans.org/meetings/c\\_1](http://www.new.ans.org/meetings/c_1)

**9th International Conference on Advances in Fluid Mechanics 2012**

Split, Croatia, June 26 - 28, 2012  
Conference Secretariat:  
Irene Moreno Millan  
Wessex Institute of Technology  
Ashurst Lodge, Ashurst  
Southampton, SO40 7AA  
Tel/Fax: 44 (0) 238 0293223/44 (0) 238 0292853  
E-mail: imoreno@wessex.ac.uk  
<http://www.wessex.ac.uk/12-conferences/afm-2012.html>

**Advances in Computational Heat Transfer (CHT-12)**

Bath, England, July 1 - 6, 2012  
Symposium Co-Chairs:  
Dr. D. A. S. Rees  
Dept. of Mechanical Eng'ing, University of Bath  
Tel/Fax: +44 1225 38 6775/+44 1225 38 6928  
E-mail: D.A.S.Rees@bath.ac.uk  
Em. Professor Graham de Vahl Davis  
School of Mech. and Manuf. Eng'ing  
The University of New South Wales  
Tel/Fax: +61 2 9327 5706/+61 2 9327 5710  
E-mail: g.devahldavis@unsw.edu.au  
ICHMT Secretary-General:  
Professor Faruk Arinç  
Mechanical Engineering Department  
Middle East Technical University  
06531 Ankara, Turkey  
Tel/Fax: +90 312 210 5214/+90 312 210 1429  
E-mail: farinc@ichmt.org  
<http://www.ichmt.org/cht-12/>

**5th Asian Particle Technology Symposium (APT2012)**

Singapore, July 2-5, 2012  
Conference Secretariat:  
Professional Activities Centre  
Faculty of Engineering  
National University of Singapore

Tel/Fax: +65 6516 5113/+65 6874 5097  
E-mail: APT2012@nus.edu.sg  
<http://www.apt2012.org>

**ASME 2012 Heat Transfer, Fluids Engineering, & Nanochannels, Microchannels, and Minichannels Conferences**

**ASME 2012 Fluids Engineering Division Summer Meeting**

**ASME 2012 Summer Heat Transfer Conference**

Puerto Rico, USA, July 8 - 12, 2012  
<http://www.asmeconferences.org/HTFNMM2012/>  
<http://www.asmeconferences.org/FEDSM2012/>  
<http://www.asmeconferences.org/HT2012/>

**20th International Conference on Nuclear Engineering collocated with the ASME 2012 Power Conference (ICONE20)**

Anaheim, CA, USA, July 30 - August 3, 2012  
Secretary/Controller:  
Mr. James Wieters  
SCE&G VC Sumer Nuclear Station  
Jenkinsville, SC  
E-mail: jwieters@scana.com  
<https://www.asmeconferences.org/ICONE20POWER2012/index.cfm>

**16th International Symposium on Application of Laser Techniques to Fluid Dynamics**

Lisbon, Portugal, July 9-12, 2012  
Symposium Assistant, scientific program and exhibition  
Vânia Silvério  
Tel/Fax: +351 21 841 97 24/+351 21 849 61 56  
E-mail: llaser@dem.ist.utl.pt  
<http://lces.dem.ist.utl.pt/lxllaser/lxllaser2012/>

**8th International Conference on Modeling and Diagnostics for Advanced Engine Systems (COMODIA 2012)**

Fukuoka, Japan, July 23 - 26, 2012  
Technical Committee, Chairperson:  
Eiji Tomita, Professor  
Tel/Fax: +81-86-251-8049/+81-86-251-8266  
[comodia2012\\_tech@power.mech.okayama-u.ac.jp](mailto:comodia2012_tech@power.mech.okayama-u.ac.jp)  
Secretary:  
Toshiaki Kitagawa, Professor  
Tel/Fax: +81-86-251-8235/+81-86-251-8266  
[comodia2012\\_tech@power.mech.okayama-u.ac.jp](mailto:comodia2012_tech@power.mech.okayama-u.ac.jp)  
<http://www.jsme.or.jp/esd/comodia/comodia2012/>

**15th International Symposium on Flow Visualization (ISFV15)**

Minsk, Belarus, July 25 - 28, 2012  
Contact:  
Prof. Nikita Fomin

ISFV15 Chairman  
Tel/Fax: +375 172 84 13 53/+375 172 92 25 13  
E-mail: fomin@hmti.ac.by  
Dr. Oleg Penyazkov  
ISFV15 Co-Chairman  
Tel/Fax: +375 172 84 21 36  
E-mail: penyaz@dnp.itmo.by  
Ms Olga Meleeva  
ISFV15 Secretary  
Mobile: +375 292 60 80 82  
E-mail: isfv15@hmti.ac.by  
<http://www.isfv15.com/>

**8th International Symposium on Cavitation (CAV2012)**

Singapore, August 14 - 16, 2012

Tel: +65 6338 2321

General conference matters:

[8thcav2012@gmail.com](mailto:8thcav2012@gmail.com)

Sponsor matters:

[casey\\_ang@sparkplanners.com.sg](mailto:casey_ang@sparkplanners.com.sg)

Payment matters:

[cav2012@ntu.edu.sg](mailto:cav2012@ntu.edu.sg)

<http://cav2012.sg/index.html>

**23rd International Congress of Theoretical and Applied Mechanics (ICTAM2012)**

Beijing, China, August 19-24, 2012

ICTAM2012 Secretariat:

The Chinese Society of Theoretical and Applied Mechanics

15 Beisihuanxi Road

Beijing 100190, China

Fax: +86 10 62559588

E-mail: [ictam2012@cstam.org.cn](mailto:ictam2012@cstam.org.cn)

<http://www.ictam2012.org/>

**12th International Conference on Liquid Atomization and Spray Systems (ICLASS 2012)**

Heidelberg, Germany, September 2 - 6, 2012

General information:

E-mail: [info@iclass2012.org](mailto:info@iclass2012.org)

Local Arrangements and Scientific Program:

Eva Gutheil

Interdisciplinary Center for Scientific Computing

Heidelberg University, Heidelberg, Germany

Tel/Fax: +49(0)6221-54-6114/+49(0)6221-54-6111

E-mail: [gutheil@uni-hd.de](mailto:gutheil@uni-hd.de)

Scientific Program and Exhibition:

Cam Tropea

Center for Smart Interfaces

TU Darmstadt, Darmstadt, Germany

Tel/Fax: +49(0)6151-16-6610/+49(0)6151-16-2048

E-mail: [ctropea@sla.tu-darmstadt.de](mailto:ctropea@sla.tu-darmstadt.de)

<http://iclass2012.org/>

**6th European-Japanese Two-Phase Flow Group Meeting**

Kumamoto, Japan, September 23 - 28, 2012

Prof. Michio Sadatomi

Dept. of Mechanical System Engineering

Kumamoto University

E-mail: [sadatomi@mech.kumamoto-u.ac.jp](mailto:sadatomi@mech.kumamoto-u.ac.jp)

**7th International Symposium on Turbulence, Heat and Mass Transfer**

Palermo, Italy, September 24 - 27, 2012

Organizing Secretary:

Domenico Borello, Ph.D.

E-mail: [thmt12@thmt-12.org](mailto:thmt12@thmt-12.org)

<http://www.thmt-12.org/>

**2012 AIChE Annual Meeting**

Pittsburgh, USA, October 28 - November 2, 2012

Annual Meeting Program Chair:

Lorenz T. Biegler

Department of Chemical Engineering

Carnegie Mellon University

Pittsburgh, PA 15213

Tel/Fax: 412-268-2232/412-268-7139

E-mail: [2012Annual@aiiche.org](mailto:2012Annual@aiiche.org)

<http://www.aiiche.org/Conferences/AnnualMeeting/index.aspx>

**2012 ANS Winter Meeting and Nuclear Technology Expo**

San Diego, CA, USA, November 11 - 15, 2012

[http://www.new.ans.org/meetings/c\\_1](http://www.new.ans.org/meetings/c_1)

----- 2013 -----

**International Conference on Multiphase Flow 2013 (ICMF2013)**

Jeju, Korea, May 26 - 31, 2013

**2013 ANS Annual Meeting**

Atlanta, USA, June 16 - 20, 2013

[http://www.new.ans.org/meetings/c\\_1](http://www.new.ans.org/meetings/c_1)

**8th World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics (ExHFT8)**

Lisbon, Portugal, June 24 - 27, 2013

**8th International Symposium on Turbulence and Shear Flow Phenomena**

Poitiers, France, August 28 - 30, 2013

**2013 ANS Winter Meeting and Nuclear Technology Expo**

Washington DC, USA, November 10 - 14, 2013

[http://www.new.ans.org/meetings/c\\_1](http://www.new.ans.org/meetings/c_1)

## Corresponding Members

### CANADA

#### Prof. M. Kawaji

University of Toronto  
TEL: +1-416-978-3064, FAX: +1-416-978-8605  
E-MAIL: kawaji@ecf.utoronto.ca

### FRANCE

#### Prof. J. M. Delhaye

CEA/GRENOBLE  
TEL: +33-2-76-88-42-75, FAX: +33-2-76-88-31-96,  
TLX: 320 323  
E-MAIL: DELHAYE@DTP.CEA.FR

#### Prof. J. Fabre

INP, ENSEEIHT, Institut de Mécanique des Fluides de  
Toulouse  
TEL: +33-5-61-28-58-48, FAX: +33-5-61-28-59-91  
E-MAIL: Jean.Fabre@imft.fr

### F.R.G.

#### Prof. M. Sommerfeld

Martin-Luther-Universität  
TEL: +49-3461-462879 (or 2806),  
FAX: +49-3461-462878  
E-MAIL: martin.sommerfeld@iw.uni-halle.de

### ITALY

#### Dr. G. P. Celata

ENEA Casaccia, Heat Transfer Unit Head  
TEL: +39-6-3048-3905, FAX: +39-6-3048-3026,  
TLX: 613296 ENEACAI  
E-MAIL: celata@casaccia.enea.it

#### Prof. P. D. Marco

University of Pisa  
TEL: +39-050-2217-107, FAX: +39-050-2217-150  
E-MAIL: p.dimarco@ing.unipi.it

### ISRAEL

#### Prof. G. Hetsroni

Israel Institute of Technology  
FAX: +972-8-432-4538  
E-MAIL: MERHGO1@TECHNION.BITNET

### JAPAN

#### Prof. K. Hishida

Keio University  
TEL: +81-45-566-1739, FAX: +81-45-562-7625  
E-MAIL: hishida@sd.keio.ac.jp

#### Prof. Y. Matsumoto

The University of Tokyo  
TEL: +81-3-5841-6286, FAX: +81-3-3818-0835  
E-MAIL: ymats@mech.t.u-tokyo.ac.jp

#### Prof. A. Serizawa

Daikin Industries, Ltd.  
TEL: +81-72-257-8517, FAX: +81-72-250-1900  
E-MAIL: akimi.serizawa@daikin.co.jp

#### Prof. A. Tomiyama

Kobe University  
TEL: +81-78-803-6132, FAX: +81-78-803-6131  
E-MAIL: tomiyama@mech.kobe-u.ac.jp

#### Prof. T. Takamasa

Tokyo University of Marine Science and Technology  
TEL: +81-3-5245-7406, FAX: +81-3-5245-7410  
E-MAIL: takamasa@kaiyodai.ac.jp

#### Prof. T. Tanaka

Osaka University  
TEL/FAX: +81-6-6879-7316  
E-MAIL: tanaka@mech.eng.osaka-u.ac.jp

### KOREA

#### Prof. K. H. Bang

Korea Maritime University  
TEL: +82-51-410-4365, FAX: +82-51-405-4790  
E-MAIL: khbang@hhu.ac.kr

#### Prof. S. Y. Lee

Korea Advanced Institute of Science and Technology  
TEL: +82-42-869-3026, FAX: +82-42-869-8207  
E-MAIL: sangyonglee@kaist.ac.kr

### P.R.CHINA

#### Prof. L. Guo

Xi'an Jiaotong University  
TEL: +86-29-266-3895, FAX: +86-29-266-9033  
E-MAIL: lj-guo@mail.xjtu.edu.cn

#### Prof. L. Zhou

Tsinghua University  
TEL: +86-10-6278-2231/4932, FAX: +86-10-6278-1824,  
TLX: 22617 QHTSC CN  
E-MAIL: zhoulx@mail.tsinghua.edu.cn

### SLOVENIA

#### Prof. I. Zun

University of Ljubljana  
TEL/FAX: +386-1-4771-403, FAX: +386-1-4254-217,  
TLX: 32240 FAKSTR 51  
E-MAIL: iztok.zun@fs.uni-lj.si

### U.K.

#### Prof. G. F. Hewitt

Imperial College of Science, Technology and Medicine  
TEL: +44-171-594-5562 or 5563,  
FAX: +44-171-594-5564 or 5604  
E-MAIL: g.hewitt@ic.ac.uk

### U.S.A.

#### Prof. M. Ishii

Purdue University  
TEL: +1-317-494-4587, FAX: +1-317-494-9570

#### Prof. R. T. Lahey, Jr.

Rensselaer Polytechnic Institute  
TEL: +1-518-276-6614, FAX: +1-518-276-3055  
E-MAIL: laheyrt@rpi.edu

#### Prof. E. Michaelides

Tulane University  
TEL: +1-504-865-5764, FAX: +1-504-862-8747  
E-MAIL: emichael@mailhost.tcs.tulane.edu

#### Prof. M. C. Roco

National Science Foundation  
TEL: +1-703-306-1371, FAX: +1-703-306-0319  
E-MAIL: mroco@nsf.gov